

# An Assessment of Nature-based Recreation Needs and Opportunities in Virginia

A Virginia ConservationVision Model

Model Developers:

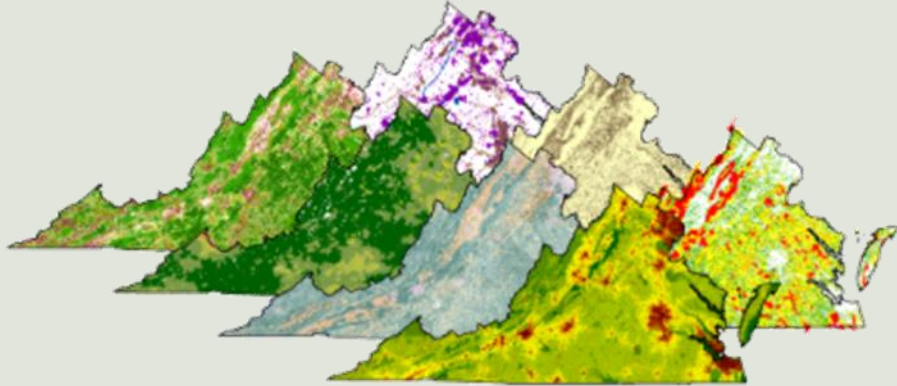
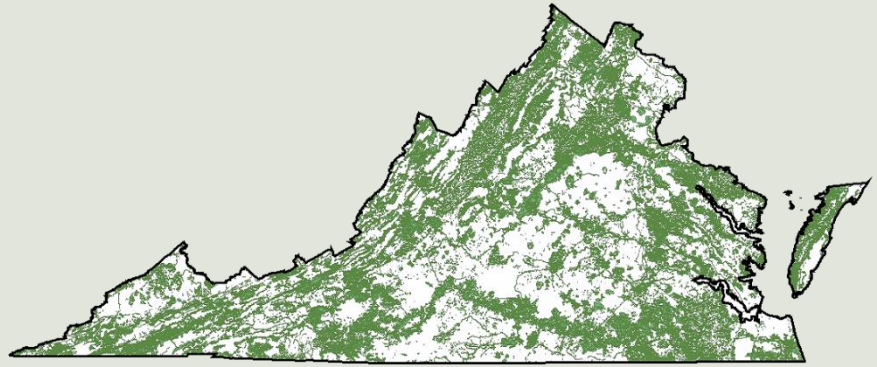
Kirsten Hazler, Natural Heritage Landscape Ecologist (presenter)

David Bucklin, Natural Heritage Spatial Ecologist





# ConservationVision vs. ConserveVirginia

Virginia ConservationVision	ConserveVirginia
Started as the Virginia Conservation Lands Needs Assessment (VCLNA) in 2007	Initiated by Governor Northam in 2018
A conservation atlas – a collection of individual maps/models representing multiple themes	A mashup of multiple maps into a single layer with multiple attributes representing multiple themes
	
May be raster or vector	Vector (polygons)
Priority values may be ranked or continuous	Priority values are binary: YES/NO
Derivatives of some ConservationVision models, along with other data sources, are incorporated into ConserveVirginia	

# Model focus: What are we trying to do?

- What is “recreation”?
  - Basketball hoops and soccer fields?
  - Hiking trails and kayak launches?
  - Interpretive programs and activities?
- What is “access”?
  - Travel time by car? By bike? On foot?
  - Affordability or lack of fees?
  - Handicapped accessibility?



**We can't include it all in one statewide model!**



# Our mandate

- Focus on green, open space recreation that does not necessarily require facilities
- Develop a tool that meets the needs of the Virginia Lands Conservation Foundation (VLCF) and ConserveVirginia





# A note on walkability...

Ours is not the model to address this

Use ParkServe instead!

<https://www.tpl.org/parkserve>

Info

☒ Parks with public access

☒ 10-minute walk park service area

☒ Park need i

Very High

High

Moderate

☒ 5 Optimized points i

☐ Urban heat islands i

Mild

Mild to Moderate

Moderate

Moderate to High

Severe

☐ 5 Heat Island influenced optimized points i

Explore more map layers

Use ParkEvaluator®

ParkEvaluator® User Manual

≡ Park Results

Richmond, VA - City Level

78.0%

Of residents are within a 10-minute walk of a park

50,156

People outside a 10-minute walk

Total Population: 228,028

[View Report](#)

[Export Report](#)

THE TRUST FOR PUBLIC LAND

**ParkServe®**

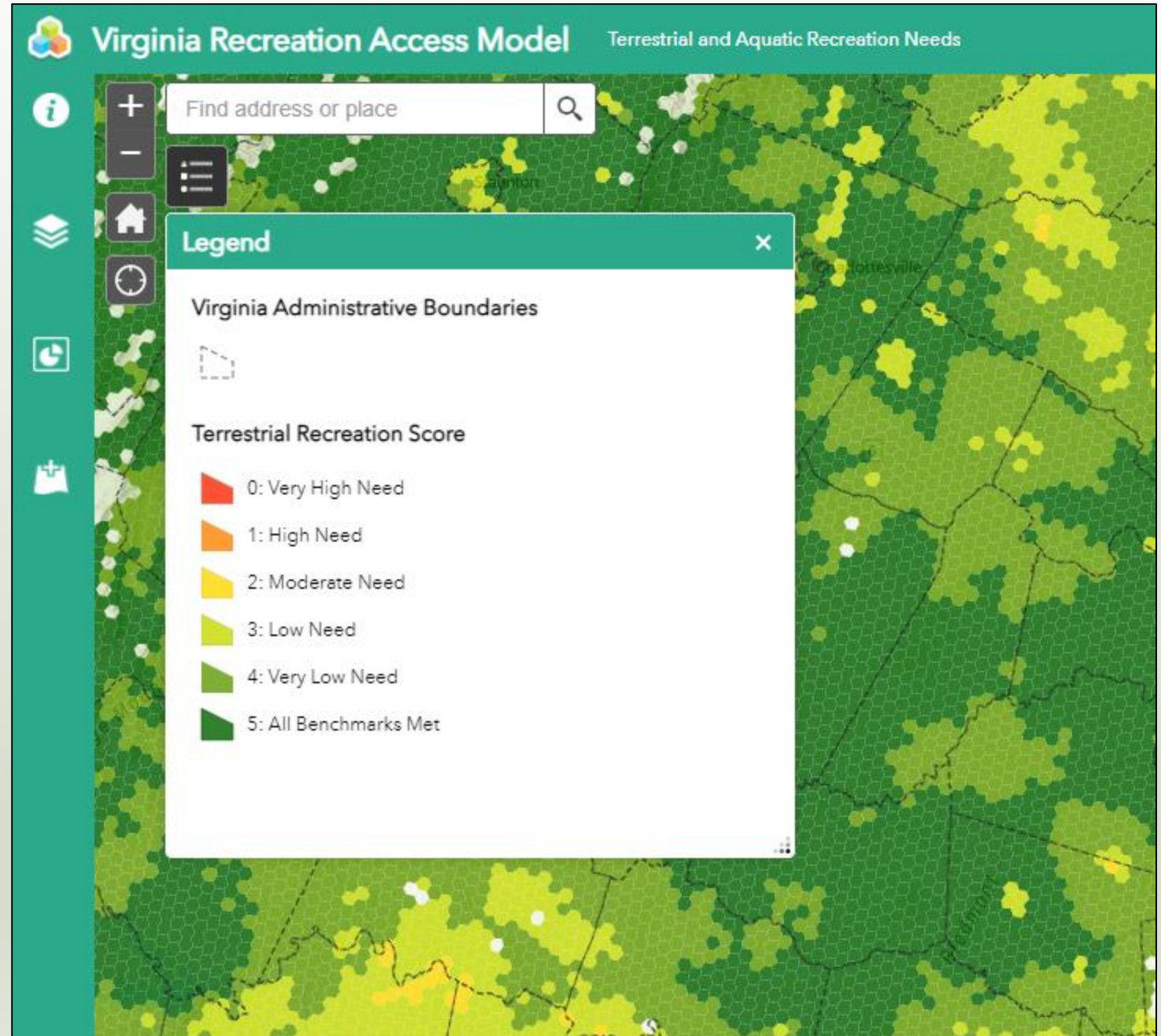
Search For Your City:

POWERED BY esri



# Model Purpose

- Quantify the availability of opportunities for **nature-based** recreation on Virginia's public lands and waters, and
- Identify areas where more opportunities for **nature-based** recreation are needed





## **nature-based recreation:**

**“Outdoor activities in natural settings or otherwise involving in some direct way elements of nature—terrain, plants, wildlife, water bodies”<sup>1</sup>**

<sup>1</sup>Cordell 2008

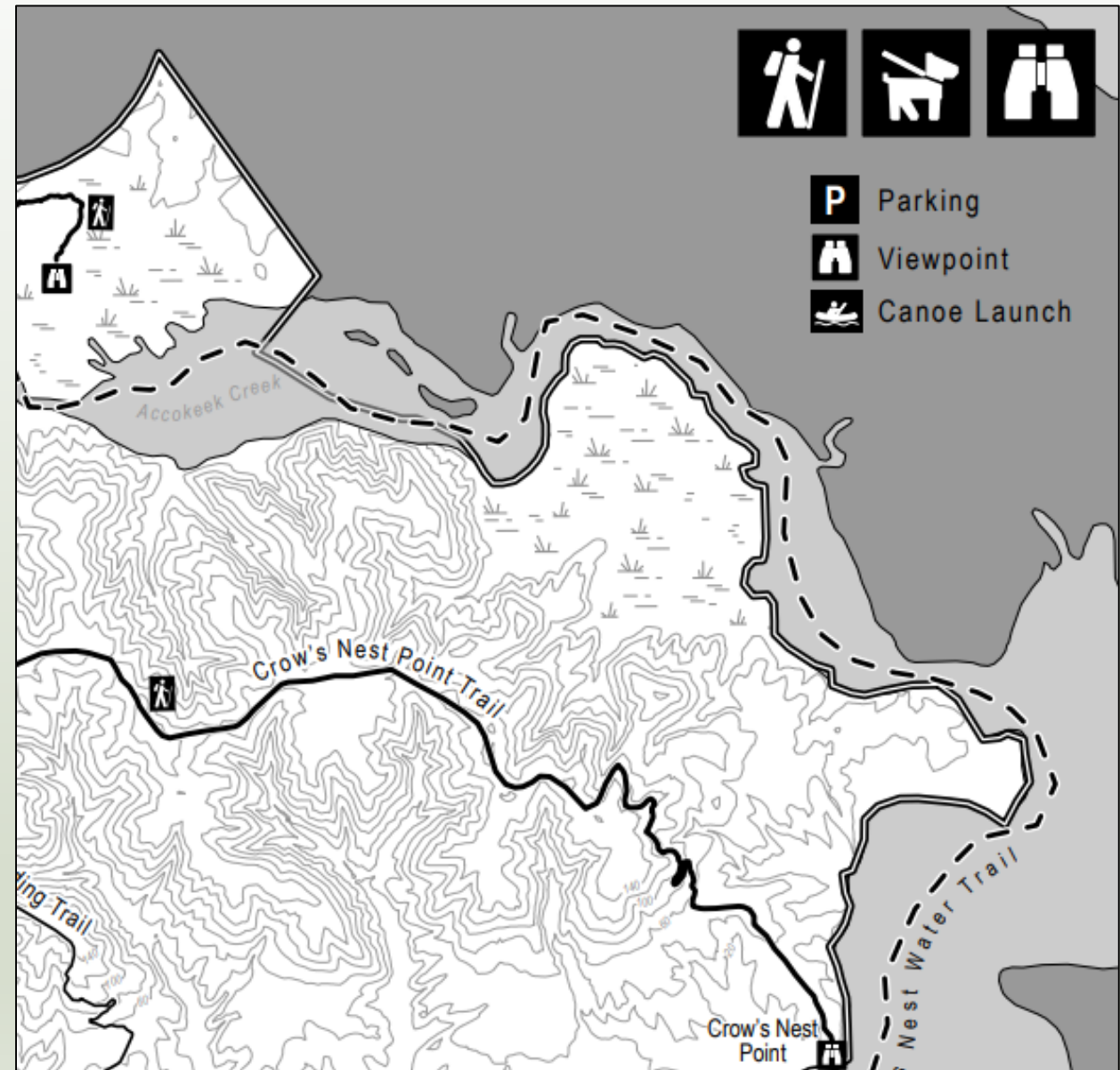


## PPA:

**Any park or protected area that is open to the public for recreational use**

May include:

- State and national parks
- Regional and local parks
- State and national forests
- Battlefields and historic sites
- Natural Area Preserves with public access
- More...





## access point:

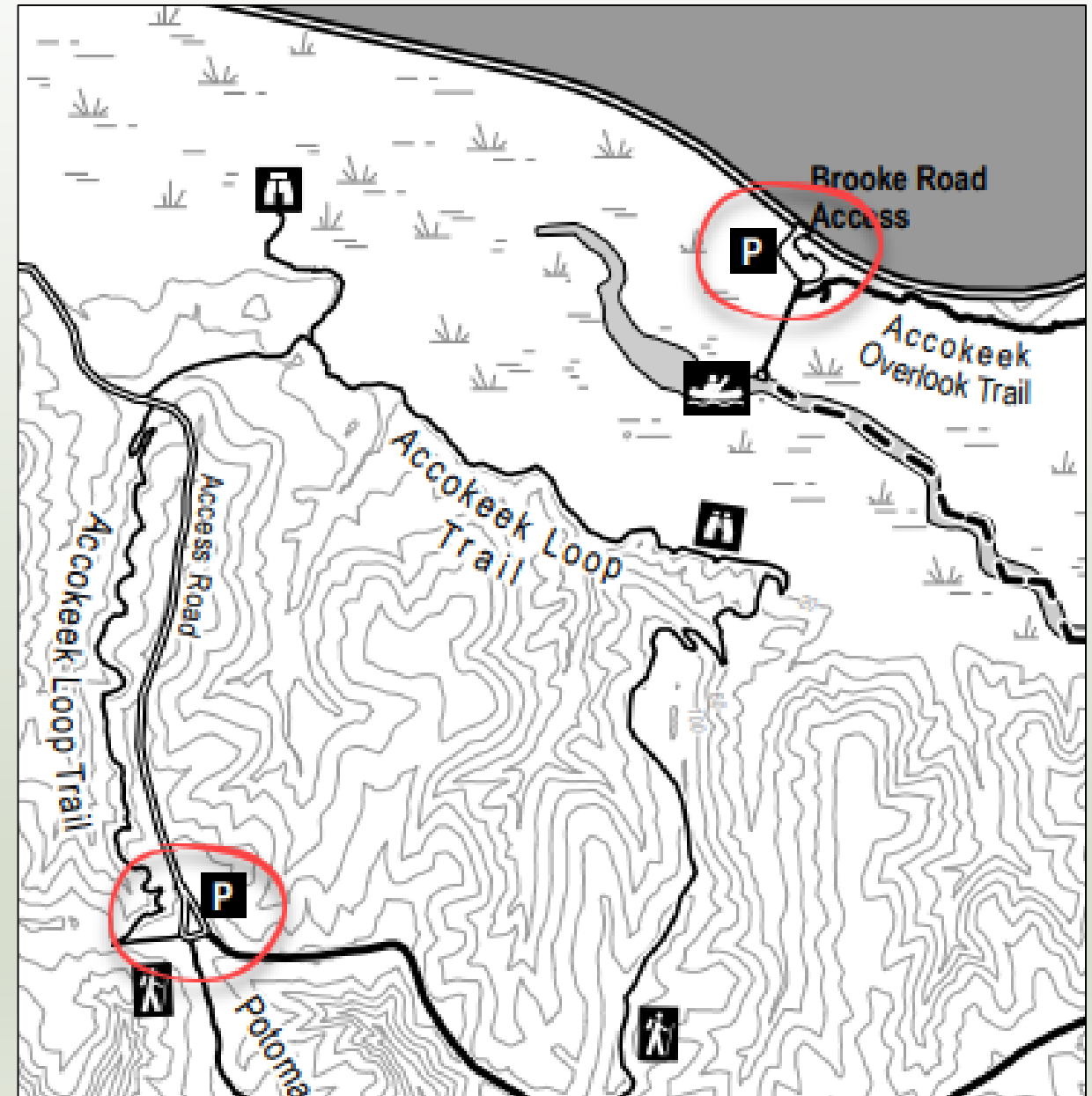
**A point of entry or access to public lands and waters**

## Recreation feature:

**A water access point or a PPA**

Note:

- A PPA can have multiple access points.
- Access points very close to each other are treated as one.



## available area (of a PPA):

The portion of a **PPA** that is within a specified buffer distance of an **access point**, trail or internal road.

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### → Feedback opportunity:

- What buffer distance to use?





**available greenspace (AG; of a PPA):**

**The non-impervious portion of land  
in the **available area** of a **PPA**.**



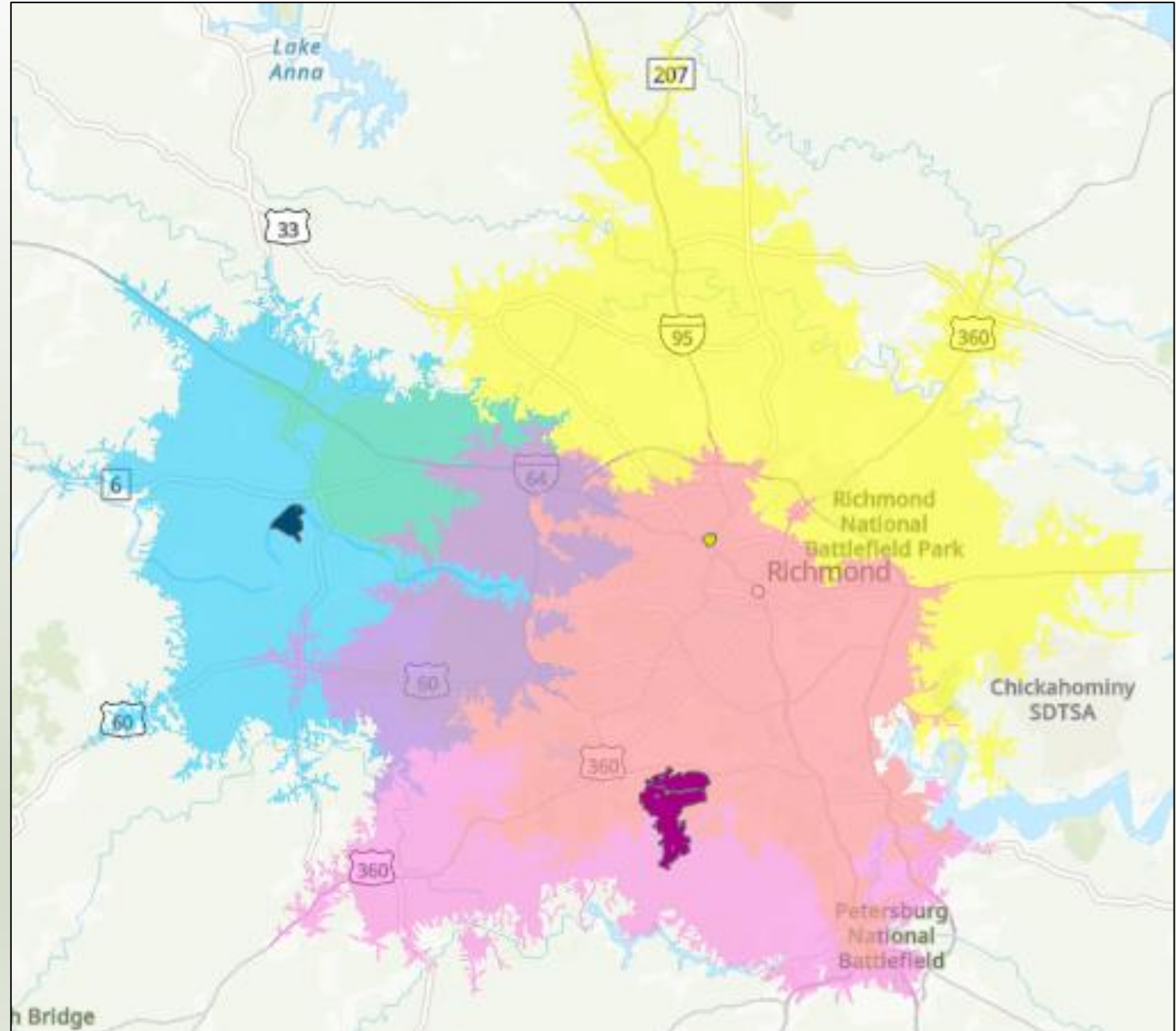
## service area:

The area around a **recreation feature** that can be reached within a specified travel time for a specified mode of travel.

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### → Feedback opportunity:

- What travel time to use to define service area?



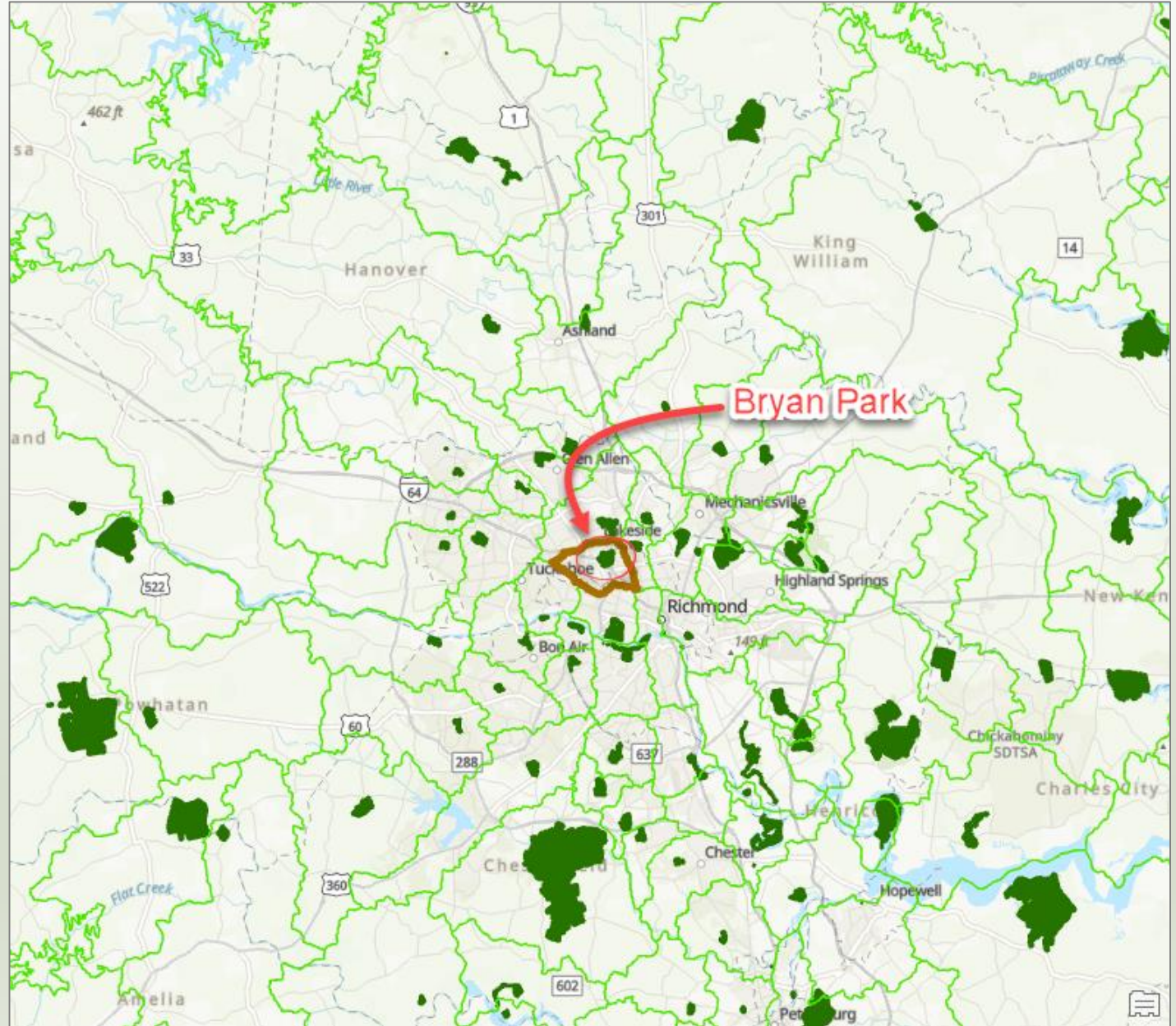


## service catchment:

The subset of a **service area** for which the travel time to the target **recreation feature** is shorter than for any other recreation feature included in the analysis

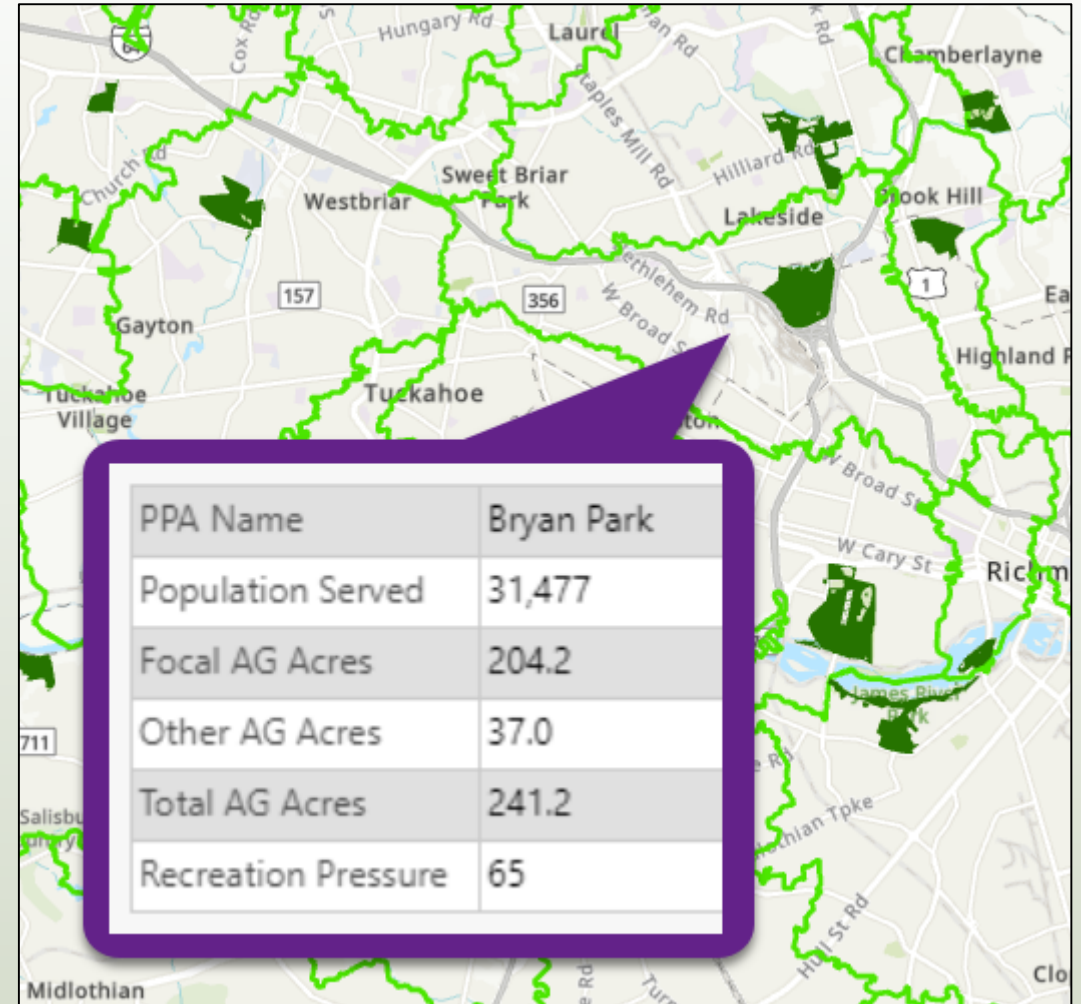
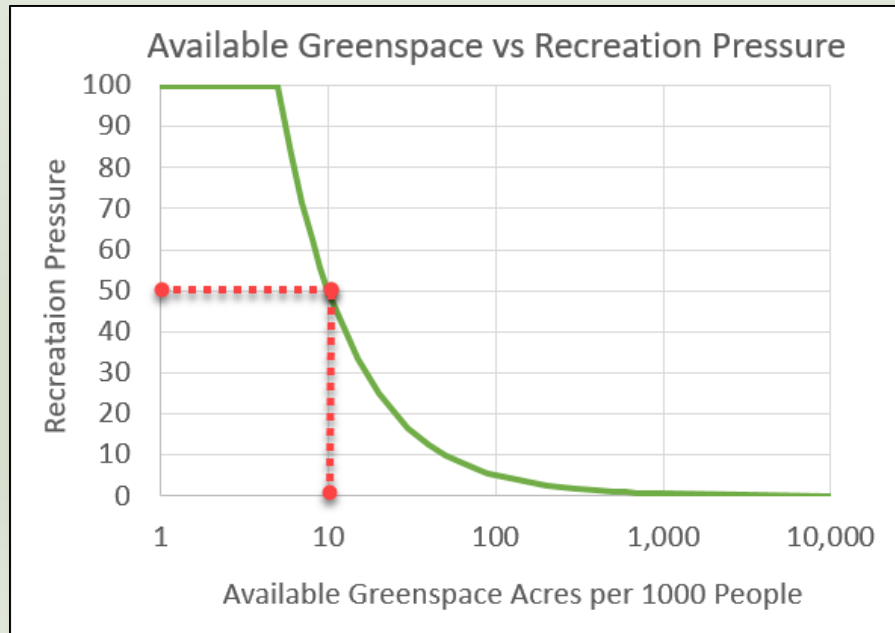
### → Feedback opportunity:

- What travel time to use to define catchments?
- Minimum available greenspace to qualify PPA for inclusion?



## recreation pressure:

A measure of the potential for overcrowding and/or overuse of a recreation feature, based on the size of the population within its **service catchment** and, for **PPAs**, the amount of **available greenspace (AG)**.



### → Feedback opportunity:

- How do we define “moderate” recreation pressure?





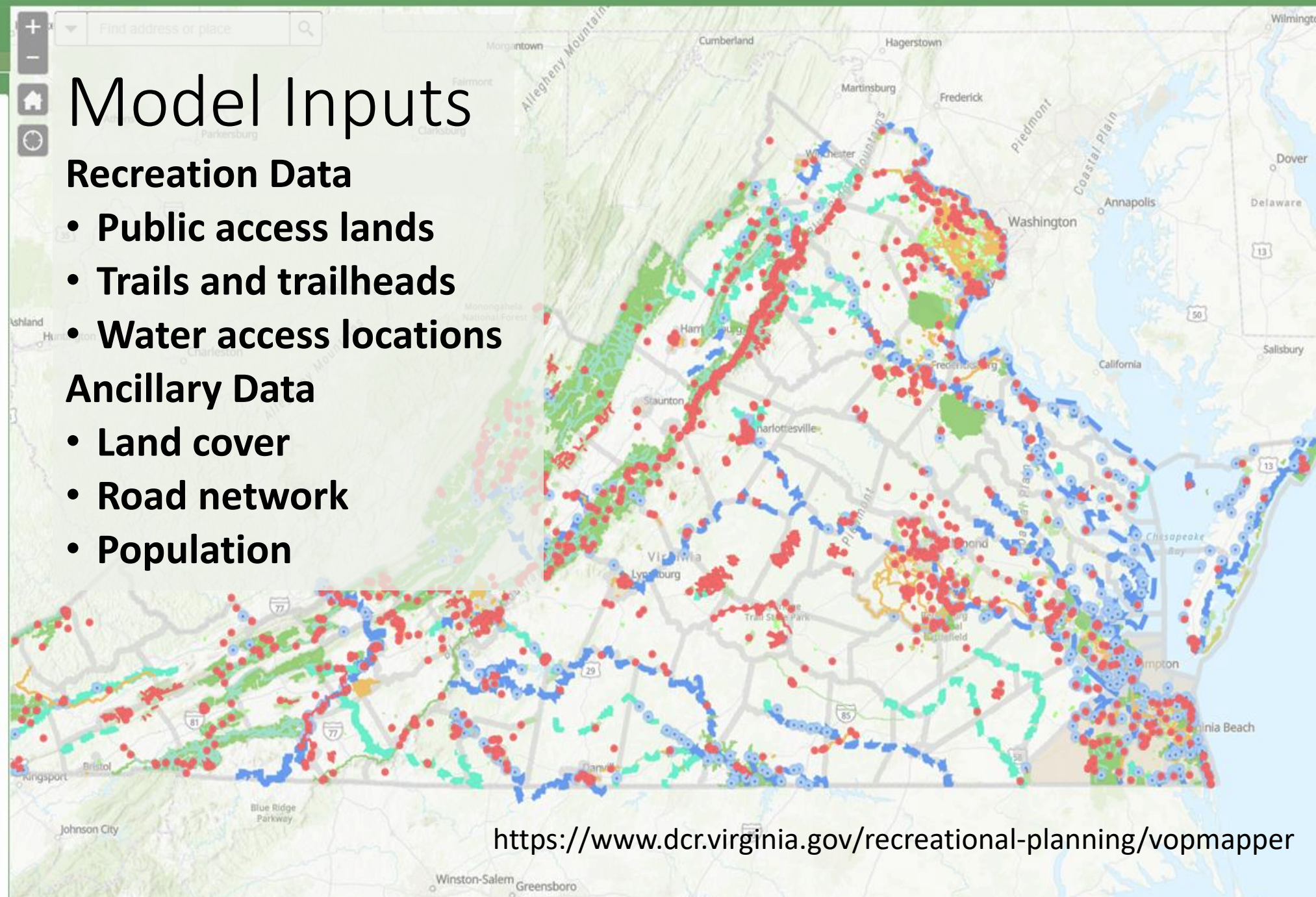
# Model Inputs

## Recreation Data

- Public access lands
- Trails and trailheads
- Water access locations

## Ancillary Data

- Land cover
- Road network
- Population



<https://www.dcr.virginia.gov/recreational-planning/vopmapper>

# Modeling Methods

- Data limitations
- Assumptions
- Simplifications



*“Essentially,  
all models are wrong,  
but some are useful.”*

George Box  
Statistician  
1919-2013



# Model Metrics – How to measure recreation access?

## Goals for developing metrics:

- Limited to a small handful of metrics
- Limited to few assumptions
- Reasonable to calculate statewide
- Reasonably intuitive for users to comprehend
- Each metric can stand alone, useful in its own right
- Metrics can be readily combined into a composite score

# Model Metrics

## Land-based

1. Terrestrial **recreation pressure** (based on 30-min catchments for PPAs with  $\geq 25$  **AG** acres)
2. Travel time to nearest **PPA** ( $\geq 5$  **AG** acres)
3. Number of **PPAs** ( $\geq 100$  **AG** acres) within 30 minutes
4. Number of **PPAs** ( $\geq 600$  **AG** acres) within 60 minutes

## Water-based

1. Aquatic **recreation pressure** (based on 30-min catchments for water access points)
2. Travel time to nearest water **access point**
3. Number of water **access points** within 30 minutes
4. Number of available activities (swimming, fishing, boating) within 30 minutes

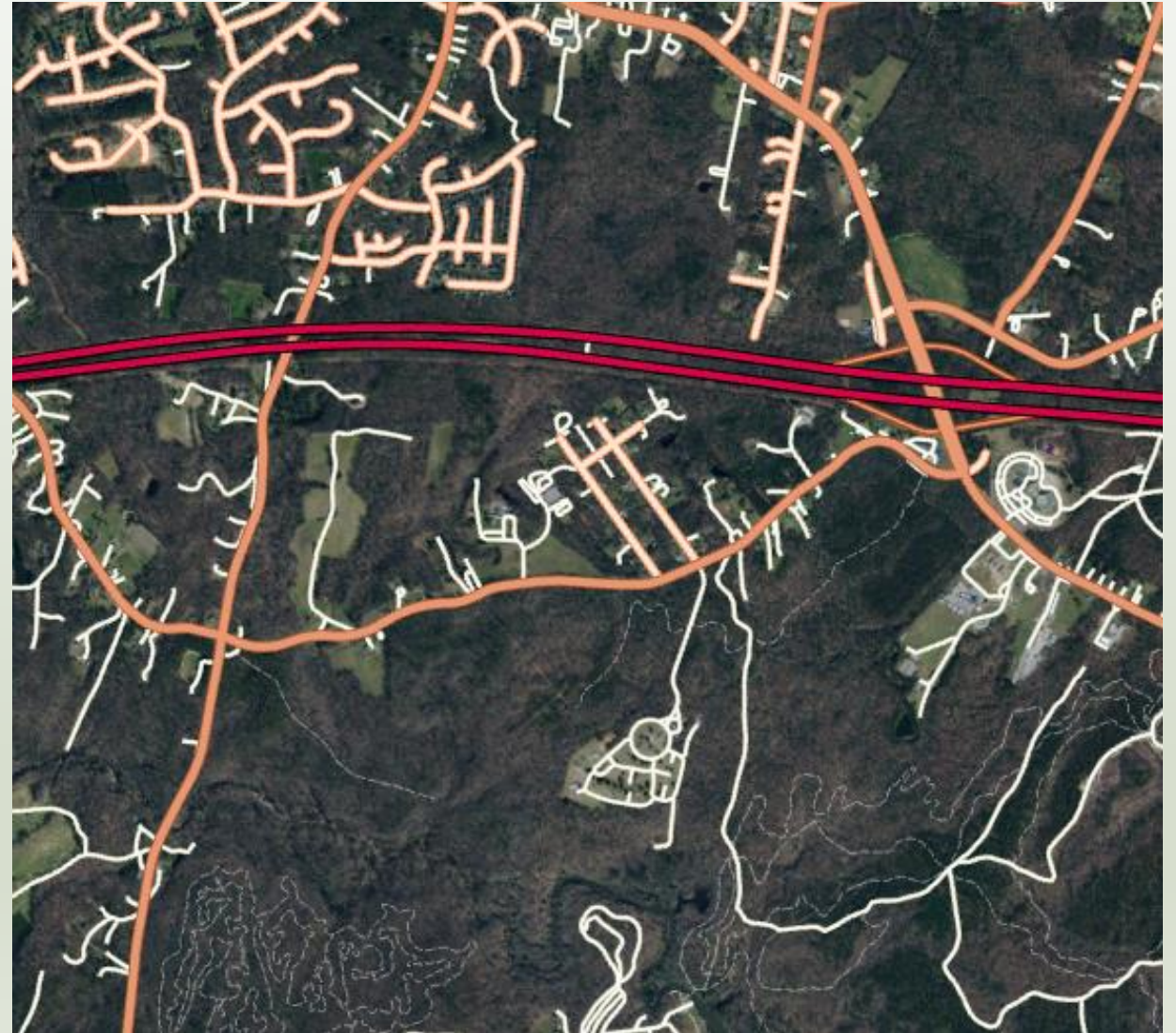
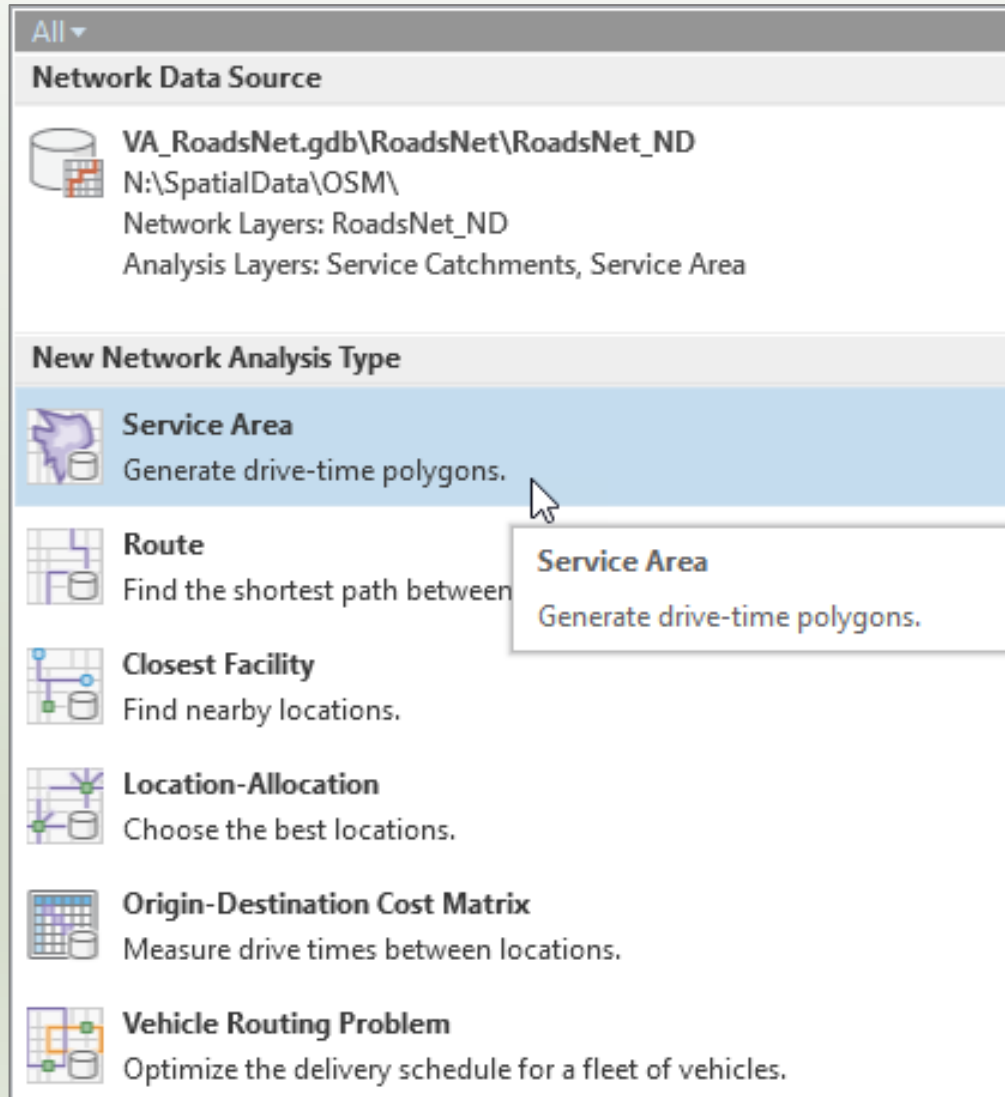
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### → Feedback opportunity:

- How do you feel about these metrics? How should they be weighted in a composite score?



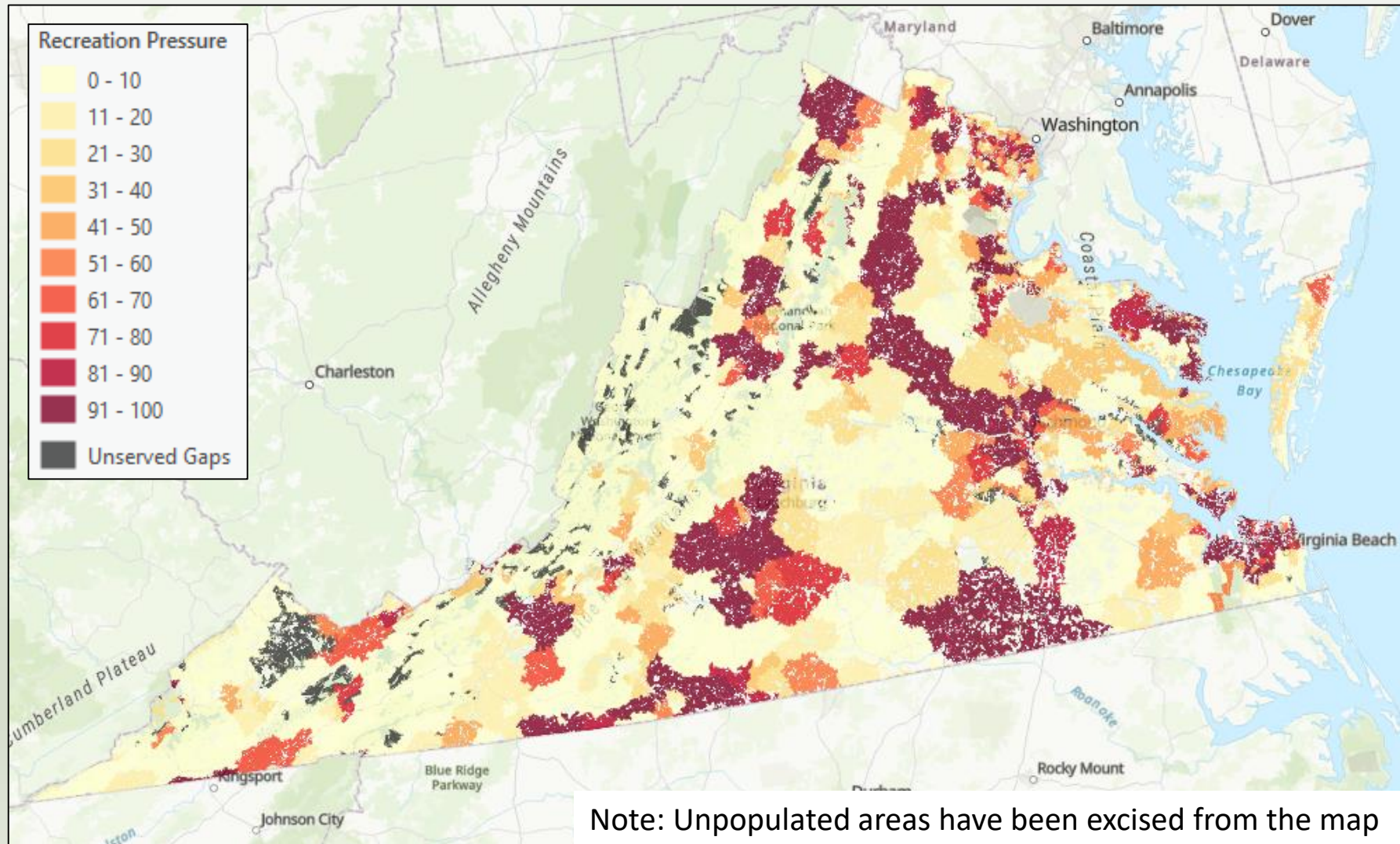
# Model Foundation: Travel Time Analyses





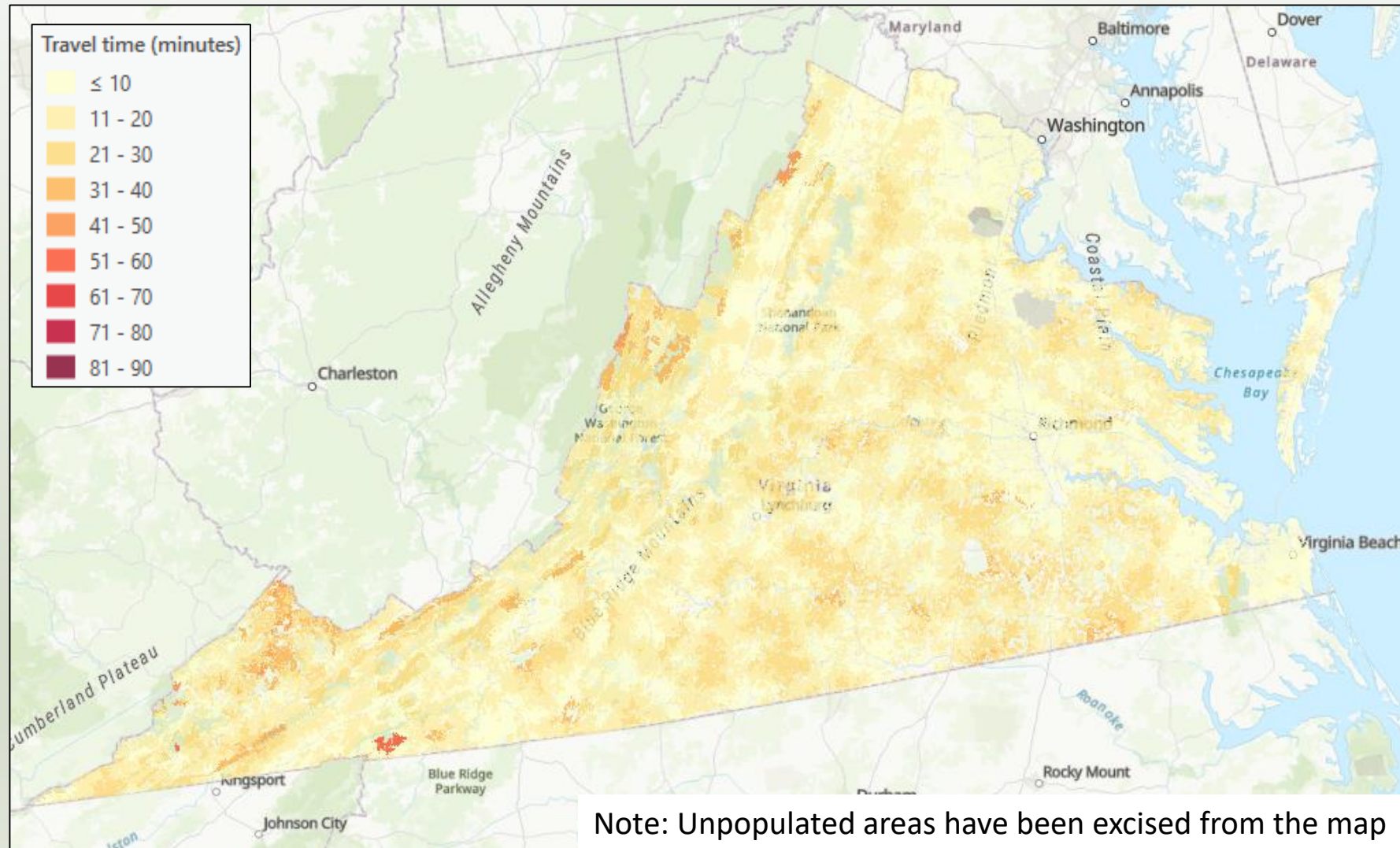
# Terrestrial Recreation Pressure

(based on 30-min service catchments for PPAs with  $\geq 25$  AG acres)

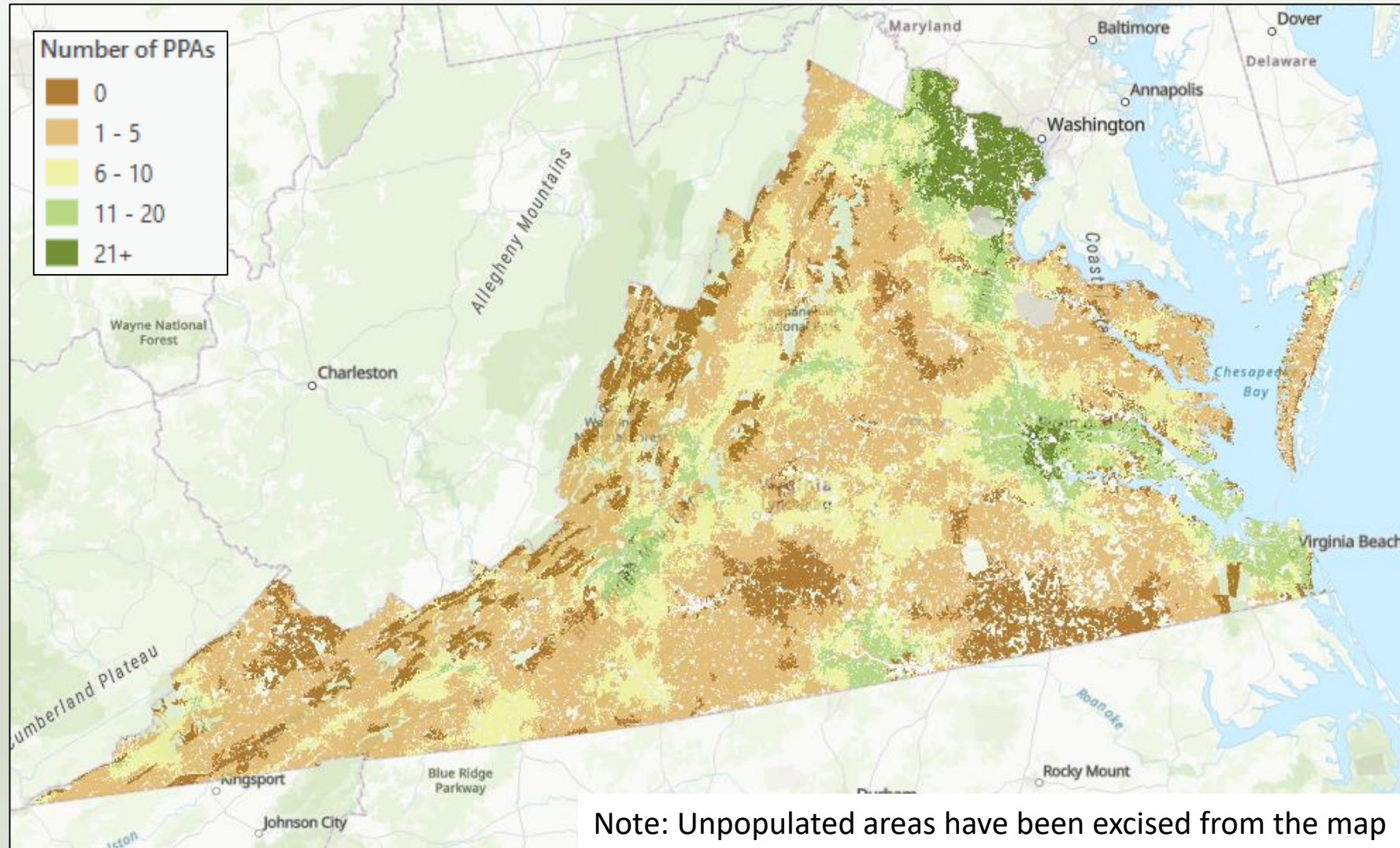




# Travel time to PPA with $\geq 5$ acres available greenspace

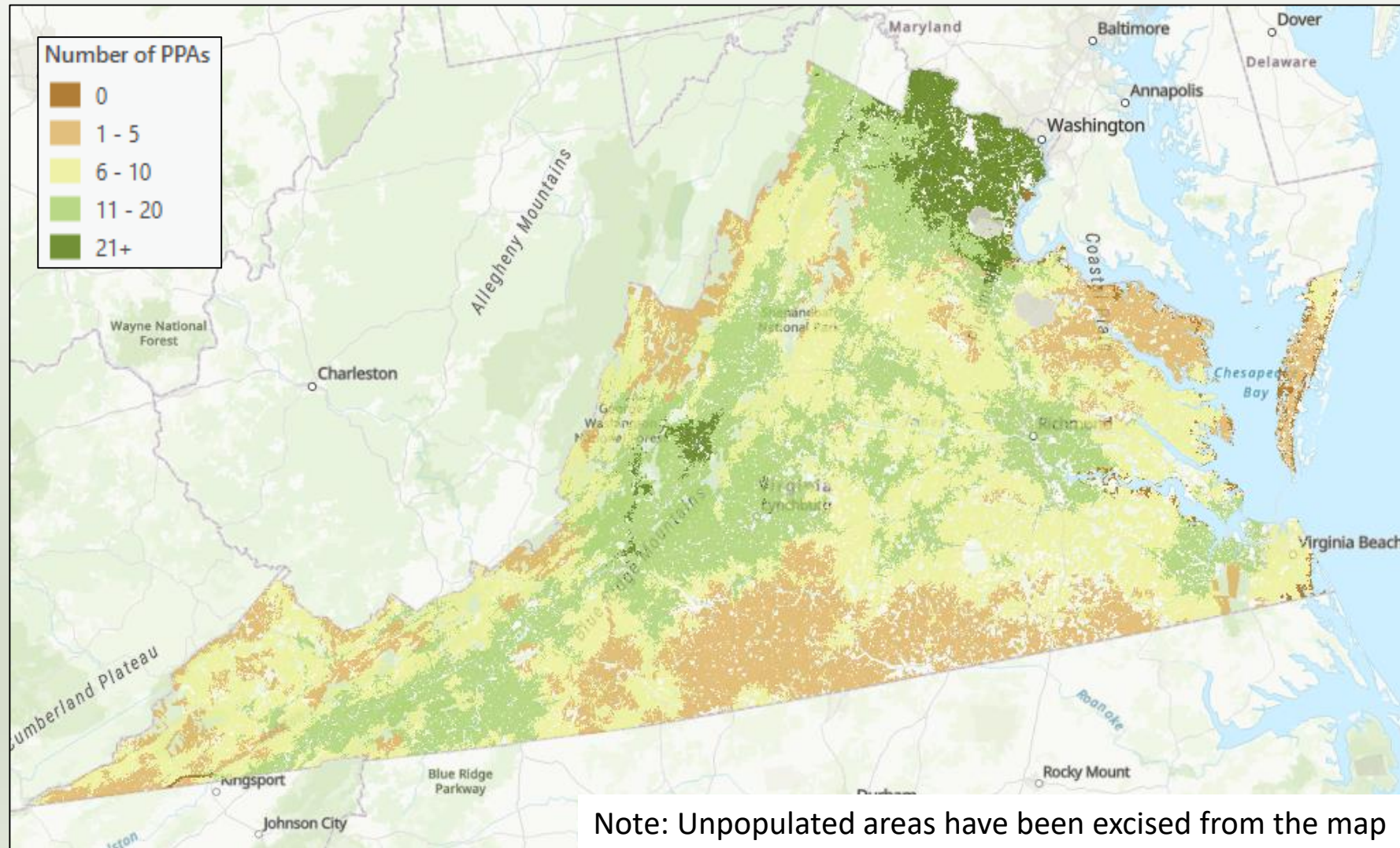


Number of PPAs  $\geq 100$  AG acres in 30 minutes



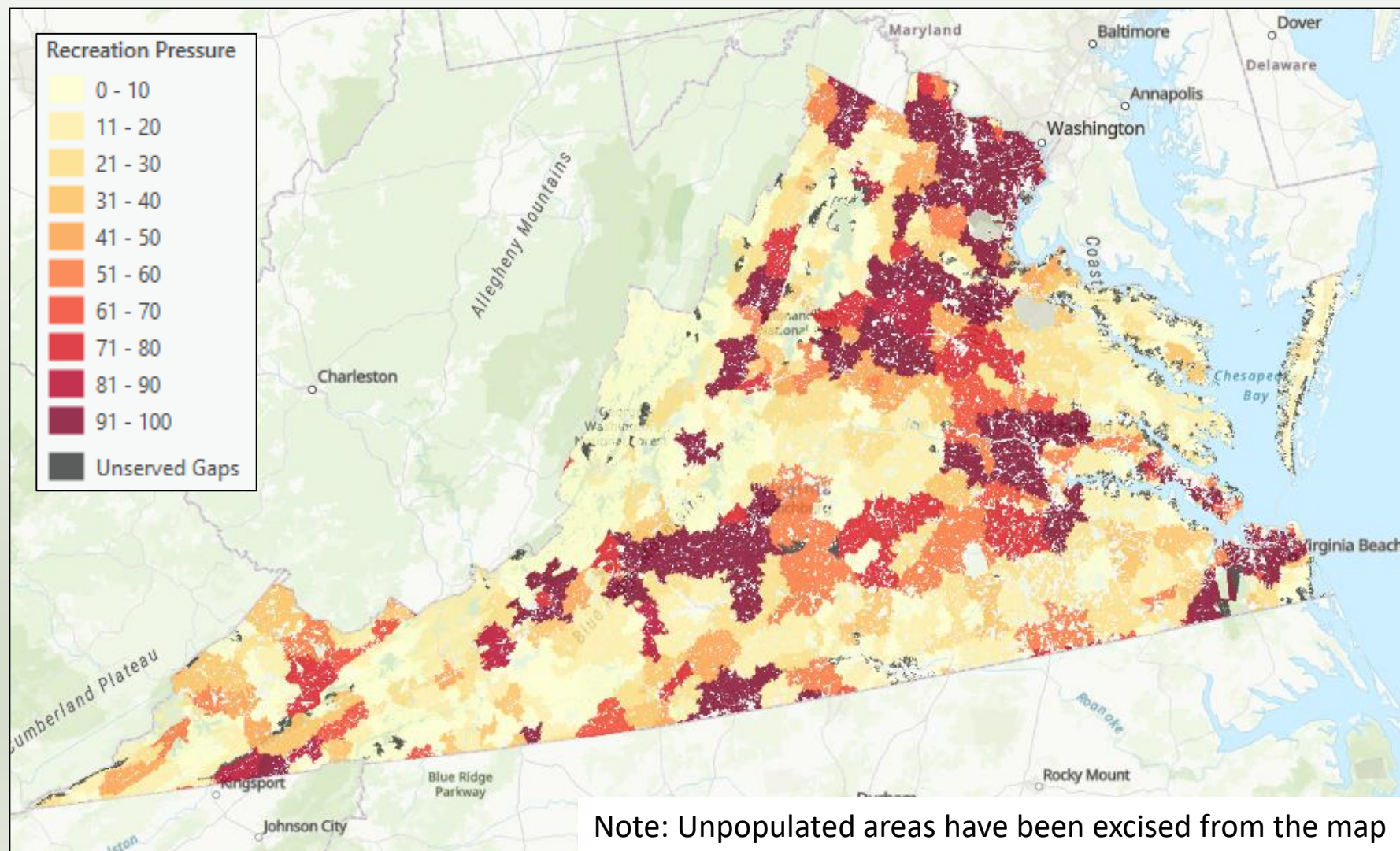


Number of PPAs  $\geq$  600 AG acres in 60 minutes



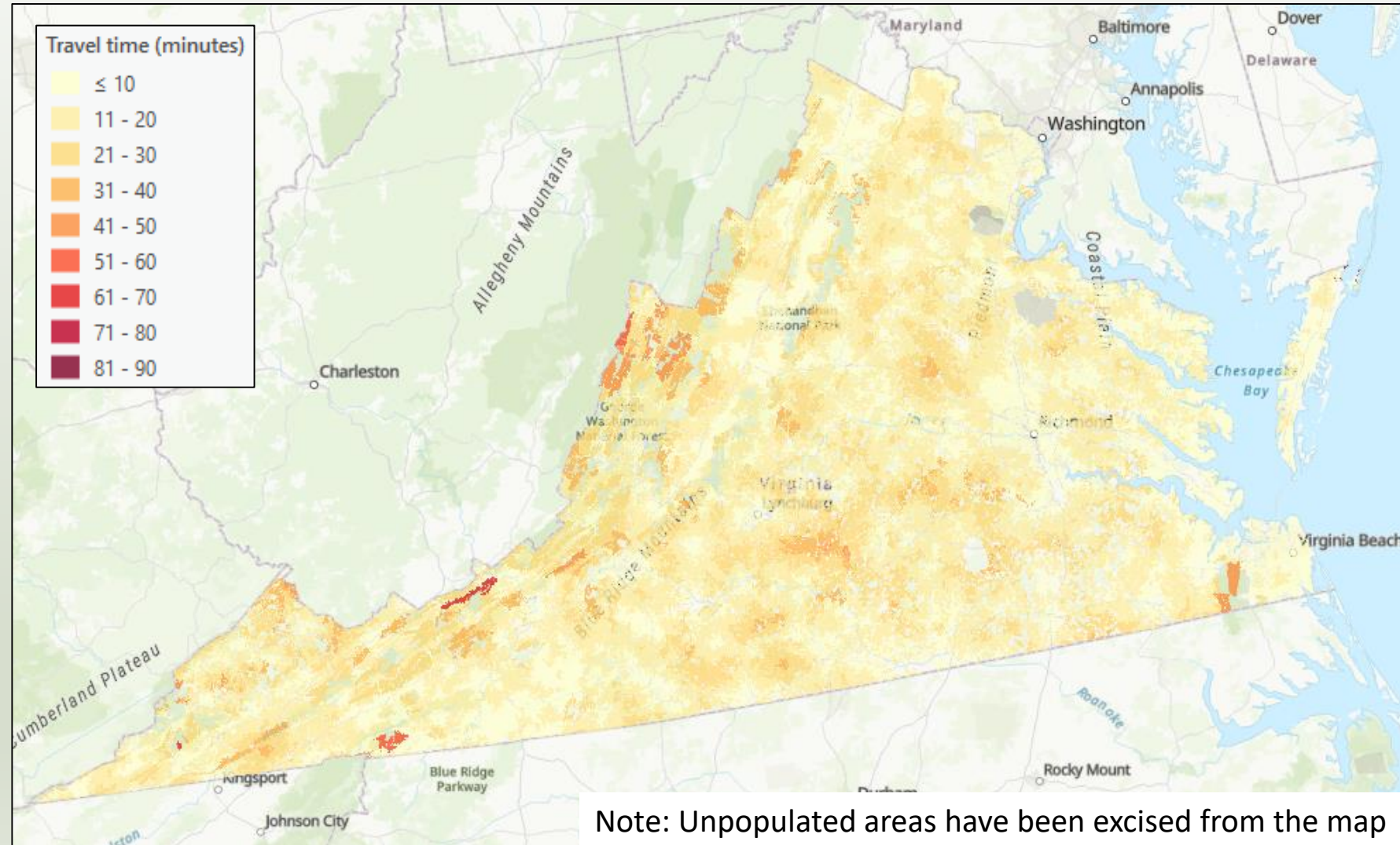
# Aquatic Recreation Pressure

(based on 30-min service catchments for water access points)

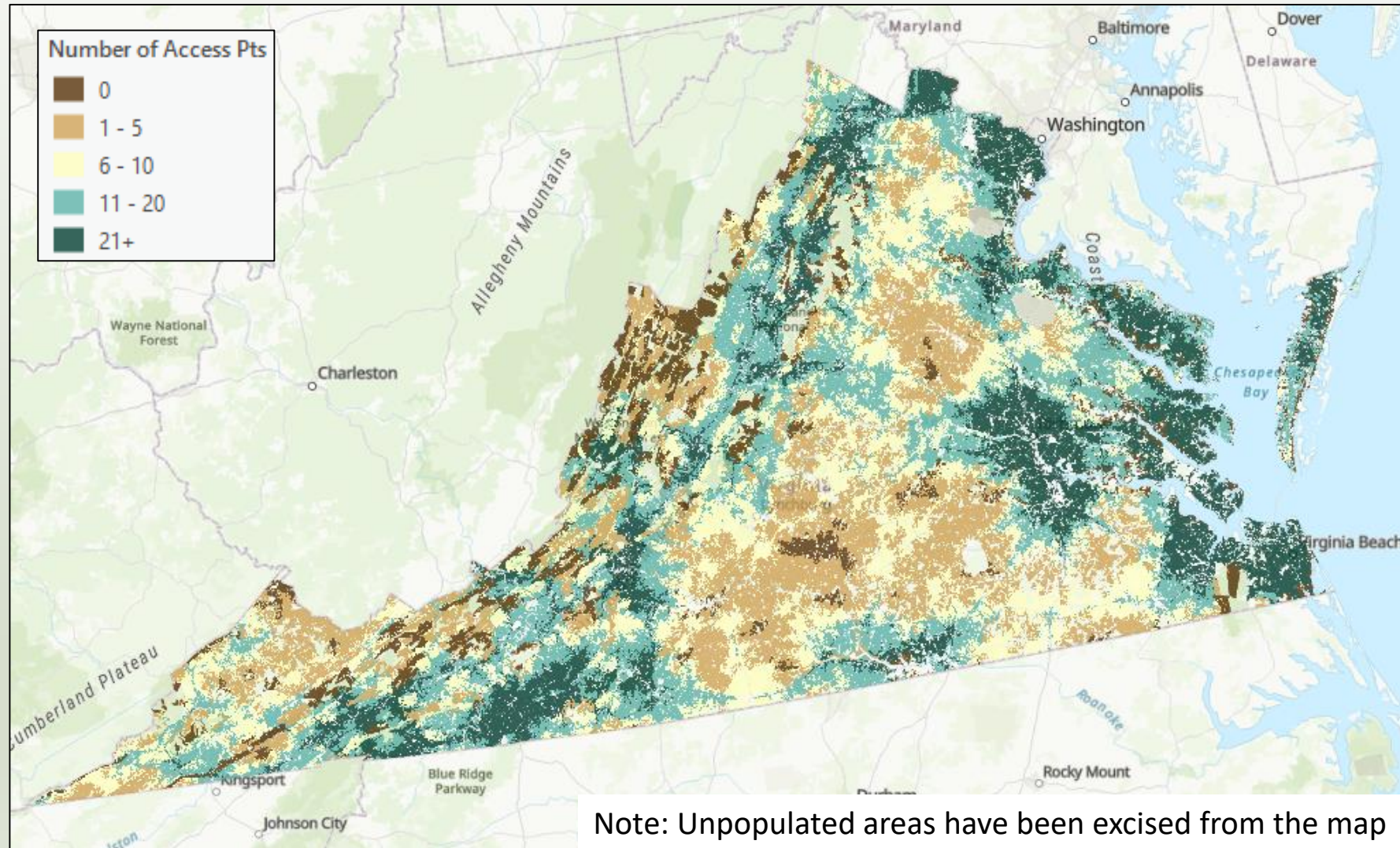




# Travel time to water access

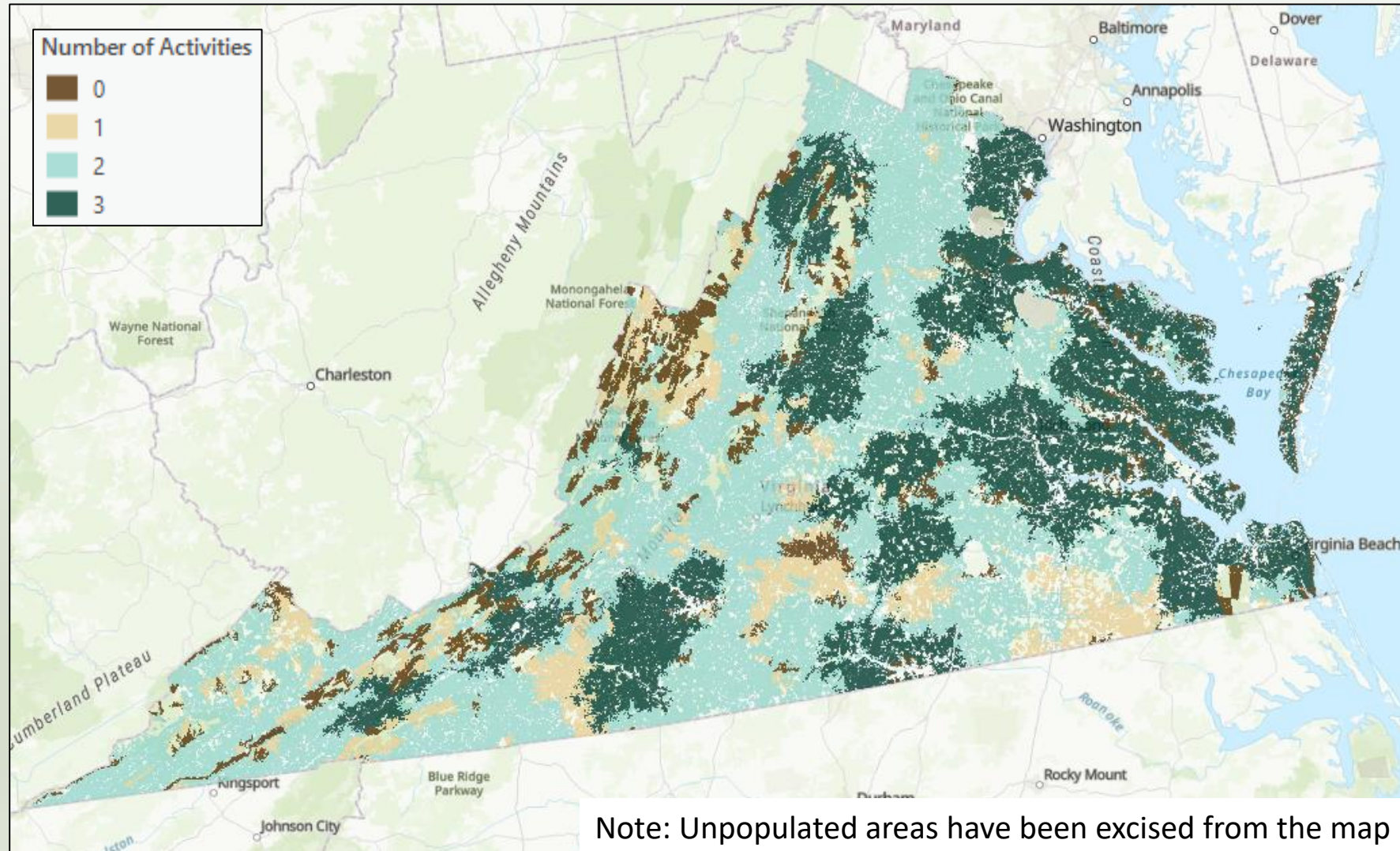


# Number of water access points in 30 minutes



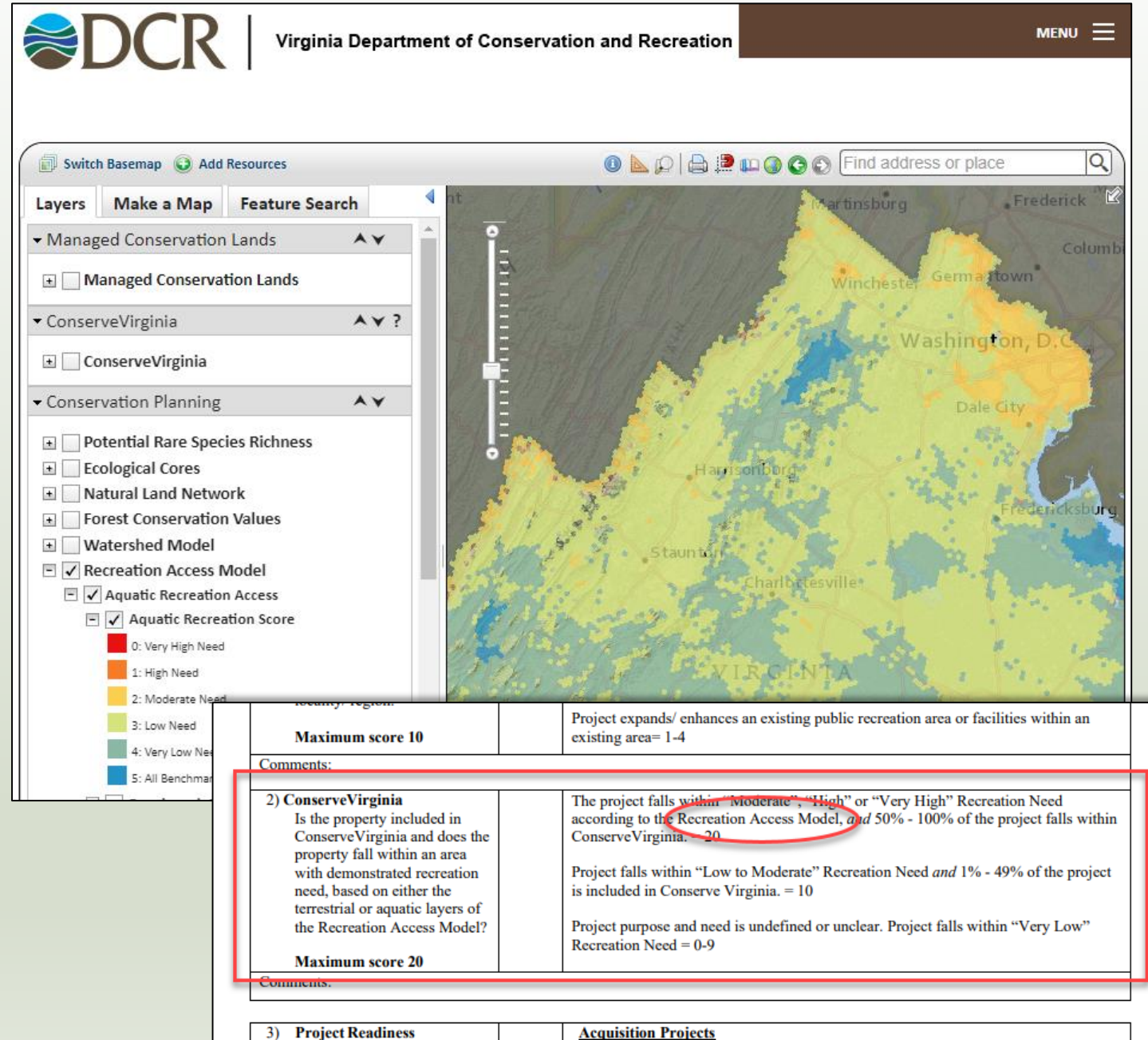


# Number of water-based activities in 30 minutes



# Model Applications

- Conservation and recreation planning at regional/statewide scales
- Scoring grant applications for conservation and recreation projects
- Incorporation in Virginia Outdoors Plan
- Integration into ConserveVirginia





# ConservationVision Recreation Access Model

Questions? Feedback?

Contact [Kirsten.Hazler@dcr.Virginia.gov](mailto:Kirsten.Hazler@dcr.Virginia.gov)

